

What is claimed is:

1. A system for serving short message in high rate packet data system from a short message entity to a terminal, comprising:

a SMSC (Short Message Service Center) for transmitting the short message;

a LIMS (Location Info. Management Server) for registering and managing location and state information of the terminal, and providing the information to the SMSC;

a PDSN (Packet Data Service Node) for reporting state information of the terminal to the LIMS; and

a PCF (Packet Control Function) for reporting location information of the terminal to the LIMS and providing call state change information of the terminal to the PDSN.

2. The system for serving short message in high rate packet data system of claim 1, wherein the short message entity is a terminal in high rate packet data system subscribing the short message service or a terminal capable of accessing the Internet.

3. The system for serving short message in high rate packet data system in claim 1, wherein the short message is transmitted to the terminal by the short message service center

working together with the LIMS, PDSN and PCF if the short message service center receives a SM Delivery Request from the short message entity.

4. The system for serving short message in high rate packet data system in claim 3, wherein the short message service center received the SM Delivery Request from the short message entity transmits the short message using location and state information of the terminal, registered to the LIMS.

5. The system for serving short message in high rate packet data system in claim 1, wherein the PCF reports location information of the terminal according to a session change case of the terminal to the LIMS.

6. The system for serving short message in high rate packet data system in claim 1, wherein the PDSN reports state information of the terminal to the LIMS according to call state change of the terminal.

7. The system for serving short message in high rate packet data system in claim 6, wherein the PDSN reports state information of the terminal to the LIMS after receiving the call

state change information of the terminal from the PCF, or after ending PPP connection with the terminal.

8. The system for serving short message in high rate packet data system in claim 1, wherein the LIMS manages an Internet Protocol address of the terminal and an IP address of the PCF reporting location information of the terminal to the LIMS when the LIMS registers and manages location information of the terminal.

9. The system for serving short message in high rate packet data system, comprising:
a LIMS (Location Info. Management Server) for managing location and state information of a terminal in high rate packet data system and an IP address information of a PCF (Packet Control Function) having the terminal in high rate packet data system; and

a SMSC (Short Message Service Center) additionally provided to the high rate packet data network for transmitting short messages from a predetermined short message entity to the terminal in high rate packet data system.

10. A method for serving short messages in high rate packet data system from a short message entity to a terminal, comprising the steps of:

receiving information of the terminal and registering the information to the LIMS (Location Info. Management Server); and

transmitting short messages to the terminal using registered information of the terminal.

11. A method for serving short messages in high rate packet data system in claim 10, wherein the terminal information registration process comprises the steps of:

transmitting location information of the corresponding terminal from the a PCF to the Location Info. Management Server according to session change case of the terminal; and

registering the location information of the terminal to the LIMS (Location Info. Management Server).

12. A method for serving short messages in high rate packet data system in claim 11, wherein the PCF further comprises IMSI (International Mobile Station Identity) of the terminal with a session change case of the terminal and an IP address of the PCF having the terminal when the PCF transmits location information of the terminal.

13. A method for serving short messages in high rate packet data system in claim 10, wherein the terminal information registration process comprises the steps of:

transmitting state information of the corresponding terminal in a PDSN (Packet Data Service Node) to the LIMS (Location Info. Management Server) according to the call state change of the terminal; and

registering the state information of the terminal to the LIMS.

14. A method for serving short messages in high rate packet data system in claim 13, wherein the PDSN further comprises IMSI of the terminal with the session change case of the terminal and an IP address of the terminal when the PDSN transmits state information of the corresponding terminal.

15. A method for serving short messages in high rate packet data system in claim 10, wherein the short message delivery process comprises the steps of:

requesting short message service from the short message entity to the short message service center;

requesting location and state information from the short message service center to the LIMS;

deciding the session change case of the terminal from LIMS;

transmitting state information of the corresponding terminal to the SMSC (Short Message Service Center) when the session change case is open or handoff; and

transmitting the short message to the corresponding terminal using a different channel according to the corresponding state information.

16. A method for serving short messages in high rate packet data system in claim 15, wherein the short message delivery process comprises the steps of:

transmitting session close location information of the terminal from the LIMS to the SMSC when the session change case is in close; and

delaying the short message delivery according to the corresponding location information, and transmitting the short message to the corresponding terminal when the session of the corresponding terminal is open.

17. A method for serving short messages in high rate packet data system in claim 15, wherein the short message delivery process according to the state information comprises the steps of:

deciding the call state change of the LIMS;

transmitting the short message from the LIMS to the short message service center when the call state change is in active;

requesting the short message delivery to the terminal from the SMSC to the PDSN (packet data service node); and

transmitting the short message from the packet data service node to the terminal using a traffic channel.

18. A method for serving short messages in high rate packet data system in claim 15, wherein the short message delivery process according to the state information comprises the steps of:

transmitting the dormant state information from the LIMS to the short message service center when the call state change is in dormant;

requesting the short message delivery to the terminal from the short message service center to the packet data service node;

transmitting the short message from the packet data service node to the PCF having the terminal;

transmitting the corresponding short message from the PCF received the short message to the access network having the terminal through a signaling channel; and

transmitting the corresponding short message from the access network received the short message transmitted through the signaling channel to the terminal using a control channel.

19. A method for serving short messages in high rate packet data system in claim 15, wherein the short message delivery process according to the state information comprises the steps of:

transmitting the idle state information from the LIMS to the short message service center when the call state change is in idle;

requesting the short message delivery to the terminal from the short message service center to the PCF having the terminal;

transmitting the corresponding short message from the PCF to the access network having the terminal through the signaling channel; and

transmitting the corresponding short message from the access network received the short message transmitted through the signaling channel to the terminal using the control channel.

20. A method for serving short messages in high rate packet data system in claim 16, wherein the short message delivery process according to the location information comprises the steps of:

registering IMSI of the corresponding terminal from the LIMS to the registration information delay list when the session change case is in close;

transmitting session close location information from the LIMS to the short message service center; and

registering IMSI of the corresponding terminal and the short message data from the short message service center to the short message delay list.

21. A method for serving short messages in high rate packet data system in claim 16, wherein the short message delivery process according to the location information comprises the steps of:

transmitting the corresponding session open location information from the PCF having the base station to the LIMS when the session of the terminal having IMSI is open;

registering location information of the terminal to the LIMS, transmitting session open location information to the short message center if IMSI of the corresponding registered terminal is in the registration information delay list, and deleting the corresponding IMSI from the registration delay list;

requesting the short message delivery to the corresponding terminal from short message service center received the session open location information to the PCF having the terminal if

the corresponding IMSI is in the short message delay list, and deleting the corresponding IMSI from the short message delay list;

transmitting the short message from the PCF to the access network having the terminal through the signaling channel according to the short message delivery request; and

transmitting the corresponding short message from the access network received the short message transmitted through the signaling channel to the terminal using the control channel.

22. A terminal in high rate data system receiving short messages in high rate data system transmitted through the system of claim 1.